

HETEROCARPUS CUTRESSI, NEW SPECIES, AND
PLESIONIKA MACROPODA CHACE, 1939: TWO
CARIDEAN SHRIMPS OF THE FAMILY PANDALIDAE
(CRUSTACEA: DECAPODA) FROM PUERTO RICO
AND THE U.S. VIRGIN ISLANDS

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Abstract.—Two species of deep-water (320–777 m) pandalid shrimps (Crustacea: Decapoda: Caridea) are reported. Previously undescribed, *Heterocarpus cutressi*, n. sp., has two longitudinal lateral carinae with the dorsalmost originating anteriorly at the antennal spine; the abdomen has a blunt median ridge on the third, fourth, and fifth somites. *Plesionika macropoda* Chace, 1939 has the dorsal surface of the rostrum smooth except for eight to 10 teeth on the basal crest; the dactyls of the walking legs are armed with five teeth along the posterior margin. Specimens of both species were collected in baited, wire-mesh traps.

In this paper, a prelude to a more complete report on deep-water shrimps collected in the waters around Puerto Rico and the U.S. Virgin Islands, I describe one species of pandalid and redescribe another. The former is in the genus *Heterocarpus* A. Milne-Edwards, 1881, consisting of over 20 species and subspecies and characterized by a dorsal and at least one longitudinal lateral carinae (one exception) and with the second pair of pereopods unequal and dissimilar. The other belongs to the genus *Plesionika* Bate, 1888, with over 60 species, and characterized by a carapace without lateral carinae and an abdomen that is unarmed dorsally. A redescription of *Plesionika macropoda* Chace, 1939 was decided upon due to the lack of figures in the original description. For a thorough report on the Pandalidae, the reader is referred to Chace (1985).

Holotype and paratypes of *Heterocarpus cutressi* are deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM); paratypes are also deposited in the Museum of Natural History, Paris, France (MNHP); and

in the Marine Invertebrate Museum of the University of Puerto Rico at the Department of Marine Sciences Field Station, Mayaguez, Puerto Rico (UPR).

Heterocarpus cutressi, new species
Figs. 1–3

Material.—Holotype: USNM 234162, 1 ♂, southwest of Puerto Rico, 17°51.7'N, 67°15.4'W, 777 m, 22 Dec 1983, coll. D. Hensley, 37.4 mm carapace length.

Paratypes: USNM 234163, 1 ♂, 1 ♀ (ovig.), south of Puerto Rico, 17°54.3'N, 66°51.0'W, 500 m, 28 Mar 1985, coll. O. Monterrosa; UPR, 2 ♂, St. Thomas, U.S. Virgin Islands, May 1983, coll. M. Brandon; UPR, 1 ♀, north-northwest of Buck Island, St. Croix, U.S. Virgin Islands, 550–650 m, Jun–Jul 1985, coll. I. Clavijo.

Size of paratypes (carapace length): male, 23.8–37.3 mm (n = 3); female, 36.1 mm; ovigerous female, 34.2 mm.

All specimens were captured in baited wire-mesh fish traps.

Description.—Rostrum somewhat longer than carapace in smaller specimens, slightly shorter than carapace in larger ones, di-

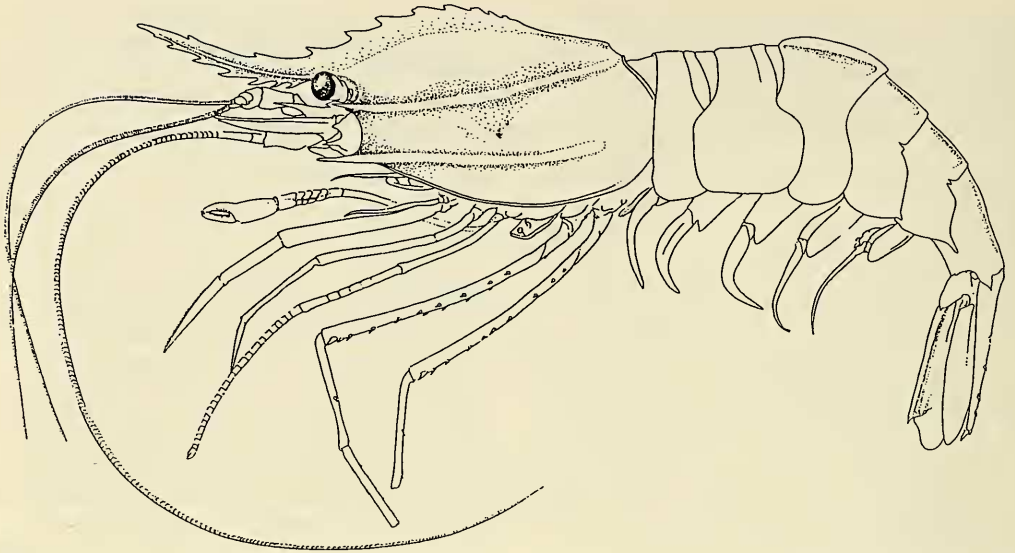


Fig. 1. *Heterocarpus cutressi*, male holotype from South Puerto Rico, carapace length 37.4 mm (Magnification: $\times 1.8$).

rected slightly dorsad, with lateral carina extending over posterior $\frac{2}{3}$ – $\frac{7}{8}$ of length; armed with 10 or 11 dorsal teeth extending to anterior end, including 5–7 postorbital teeth, armed ventrally with 6–10 teeth. Carapace with median postrostral ridge nearly complete; with 2 lateral carinae, dorsalmost directly in line with antennal spine and extending to posterior margin, lateral carina reaching $\frac{2}{3}$ to $\frac{3}{4}$ carapace length; with slight depression found at midlength, between carinae; branchiostegal spine slightly overreaching antennal spine (Fig. 1).

Abdomen (Fig. 2A) with 1st and 2nd somites rounded dorsally, 3rd somite with distinct middorsal carinae, somites 4 and 5 slightly carinate middorsally, somite 6 with subparallel ridges partially subdivided by a middorsal sulcus. Pleuron 4 with small posteroventral tooth, pleuron 5 posteroventrally produced into elongate spine. Telson $1\frac{3}{8}$ length of 6th somite, with shallow mid-dorsal concavity reaching almost to posterior tip; 5 pairs of dorsolateral spinules, posteriormost pair situated dorsolateral to base of long, lateral spine of 2 apical pairs.

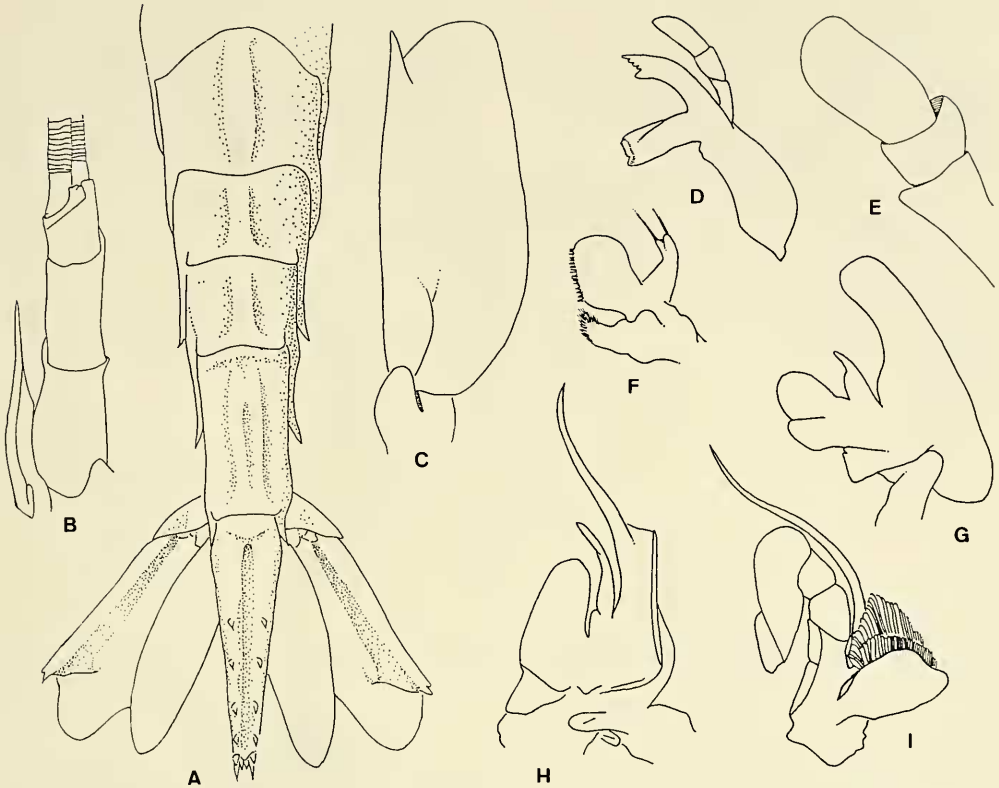
Eye subpyriform, maximum diameter about $\frac{1}{5}$ of carapace length; ocellus lacking.

Antennular peduncle (Fig. 2B) with stylocerite acute, reaching at least to midlength of external margin of 2nd segment of peduncle.

Antennal scale (Fig. 2C) with blade slightly overreaching distolateral spine, distal margin broadly rounded.

Mouthparts (Fig. 2D–I) as illustrated. Mandibular palp (Fig. 2D) with basal article lobate at inner distal angle, 2nd article (Fig. 2E) broad, about $\frac{1}{2}$ length of terminal article. Third maxilliped overreaching antennal scale by $\frac{2}{3}$ length of terminal article, armed terminally with small corneous spine, penultimate segment about $\frac{2}{3}$ length terminal segment.

Pereopods with well-formed epipods on 4 anterior pairs. First pereopod slightly overreaching antennal scale; fingers small (Fig. 3D), less than 1 mm in length, with single apical spine on each finger. Second pair of pereopods with shorter one (Fig. 3C) reaching distal $\frac{4}{5}$ – $\frac{7}{8}$ of antennal scale, chela subequal to carpus in length, fingers with



Figs. 2. *Heterocarpus cutressi*, male holotype from South Puerto Rico: A, Posterior part of abdomen, dorsal aspect including telson and uropods; B, Left antennule, dorsal aspect; C, Left antennal scale, dorsal aspect; D, Right mandible; E, Right mandibular palp, reverse aspect; F, Left 1st maxilla; G, Left 2nd maxilla; H, Left 1st maxilliped; I, Left 2nd maxilliped (Magnifications: A, $\times 3.2$; B, C, D, F, G, H, I, $\times 65$.; E, $\times 13.5$).

entire cutting edges, subequal to palm in length, carpus comprising 6 articles, ischium carinate along posterior margin; longer 2nd pereopod (Fig. 3E) overreaching antennal scale by lengths of chela and distal $\frac{1}{2}$ of carpus, latter with 22–25 articles. Third pereopod (Fig. 3D) extending beyond antennal scale by lengths of dactyl, propodus and distal $\frac{1}{4}$ to $\frac{3}{8}$ of carpus; dactyl (Fig. 3E) $\frac{1}{6}$ length of propodus, with 5 spines on posterior margin; carpus, in addition to row of spines along posterior margin, with 1 or 2 spines on lateral margin at $\frac{1}{3}$ – $\frac{2}{3}$ its length; 3 distal segments, combined, slightly longer than carapace. Fourth pereopod overreaching antennal scale by lengths of dactyl and propodus; dactyl as in 3rd pereopod; 1 or 2

spines projecting posterolaterally from carpus; 3 distal segments, combined, slightly longer than carapace. Fifth pereopod overreaching antennal scale by length of dactyl and $\frac{2}{3}$ – $\frac{3}{4}$ of propodus; dactyl as in 3rd and 4th pereopods; carpus with accessory spine projecting midlaterally; 3 distal segments, combined, $1\frac{1}{10}$ – $1\frac{2}{5}$ as long as carapace.

Endopod of first pleopod of male (Fig. 3F) nearly $\frac{1}{2}$ length of exopod, distally broadened with mesial margin strongly sinuous, bearing minute hooks, without obvious notch or sinus. Appendix masculina of 2nd pleopod (Fig. 3G) armed with over 20 spines of varying lengths on anteromesial and distal margins (Fig. 3H). Exopod of 3rd pleopod about $\frac{2}{5}$ as long as carapace. Mesial

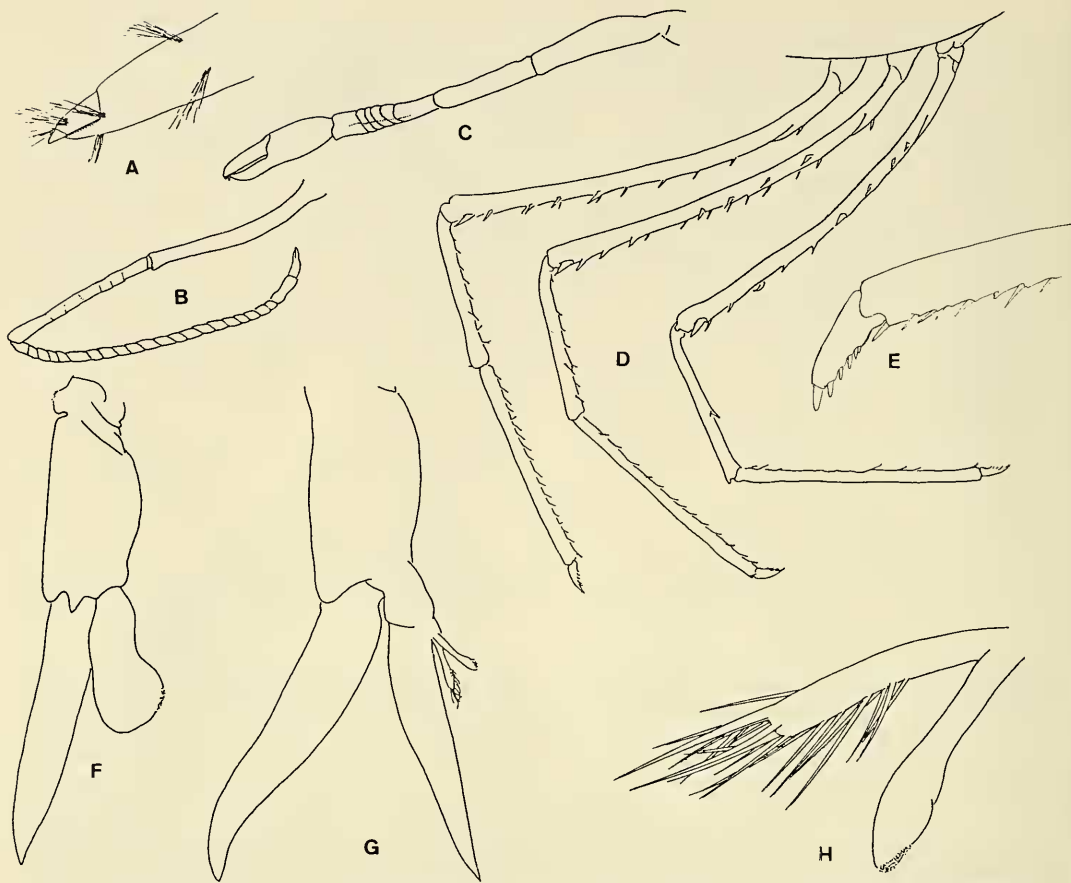


Fig. 3. *Heterocarpus cutressi*, A-C, F-H, male holotype from South Puerto Rico; D, E, male paratype from southwest Puerto Rico: A, Chela left 1st pereopod; B, Left 2nd pereopod; C, Right, same; D, Left 3rd, 4th, 5th pereopod; E, Dactyl left 3rd pereopod; F, Right 1st pleopod; G, Right 2nd pleopod showing appendices masculinae and interna; H, Right appendices masculinae and interna, mesial aspect (Magnifications: D, $\times 3.2$; B, C, F, G, $\times 6.7$; E, $\times 12.4$; A, $\times 25$; H, $\times 37.5$).

branch of uropod slightly overreaching telson proper; lateral branch slightly longer.

Coloration.—Integument orange-red except for white areas on midlateral surface and dorsal posterior margin of carapace, lateral surface of each abdominal somite, base of uropods, telson, antennal scale and basiscerite. Ova red-brown.

Habitat.—A sediment sample for one of the trapping stations indicated a mud bottom.

Remarks.—Of the 21 species and subspecies within *Heterocarpus*, only *H. cu-*

tressi and the Indo-Pacific *H. woodmasoni* Alcock, 1901 have a carapace with the dorsalmost of two lateral carinae originating anteriorly at the antennal spine (i.e., directly in line). The West Indian species is easily distinguished from *H. woodmasoni* by the absence of the median tooth near the mid-length of the 3rd abdominal somite of the latter species (Chace 1985).

Etymology.—It is a pleasure to name this species for Prof. Charles E. Cutress who inspired this investigation. His experience includes 22 years of dedicated teaching of ma-

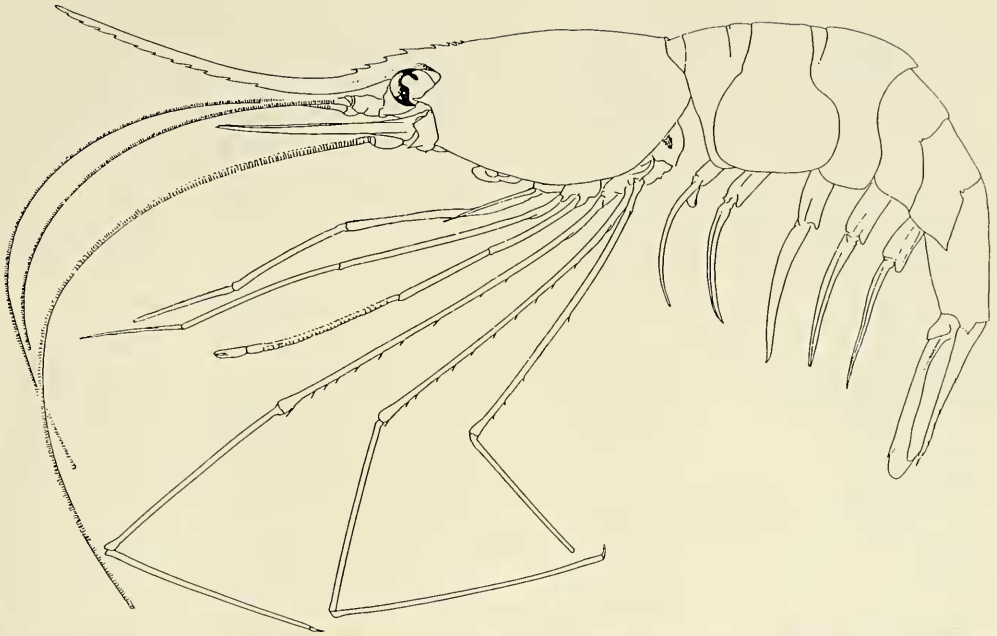


Fig. 4. *Plesionika macropoda*, female holotype from West Puerto Rico, carapace length 21.3 mm (Magnification: $\times 4.9$).

rine invertebrate systematics and biology in the Department of Marine Sciences, University of Puerto Rico at Mayaguez.

Plesionika macropoda Chace, 1939

Figs. 4, 5

Plesionika macropoda. Chace, 1939:37.—Springer & Bullis, 1956:12.—Bullis & Thompson, 1965:8.

Material examined.—USNM, 1 ♂, 5 ♀ (3 ovig.), off Fredericksted, St. Croix, U.S. Virgin Islands, 320 m, 27 Aug 1982, coll. W. Tobias; USNM, 3 ♂, 1 ♀, north of Mona Island, Puerto Rico, 18°14.3'N, 67°52.7'W, 500 m, 10 Mar 1984, coll. O. Monterrosa; UPR, 5 ♀ (2 ovig.), south Puerto Rico, 17°54.3'N, 66°51.0'W, 500 m, 28 Mar 1985, coll. O. Monterrosa; UPR, 2 ♀ (1 ovig.), north St. Thomas, U.S. Virgin Islands, 550–650 m, Jun–Jul 1985, coll. I. Clavijo; MNHP, 5 ♂, 2 ♀, south Puerto Rico, 17°53.6'N, 66°55.1'W, 475 m, 7 Oct 1985,

R/V *Chapman*, NMFS, cruise no. 507, sta 28; UPR, 1 ♀, south Puerto Rico, 17°53.2'N, 66°54.6'W, 615 m, 11 Oct 1985, R/V *Chapman*, NMFS, cruise no. 507, sta 34.

Size of material examined (carapace length): males, 16.4–20.8 mm ($n = 9$); females, 9.5–21.3 mm ($n = 10$); ovigerous females, 20.6–22.1 mm ($n = 6$).

All specimens were captured in baited, wire-mesh fish traps, except 1 ♀ from R/V *Chapman*, sta 34, which was collected in a bottom trawl.

Geographic range.—Collections of *Plesionika macropoda* have been few but the species appears to be distributed throughout the Greater and Lesser Antilles (Cuba, Chace 1939; Gulf of Mexico, Springer & Bullis 1956; Guadeloupe, Crosnier, pers. comm.; and Puerto Rico and the U.S. Virgin Islands).

Bathymetric range.—Specimens have been collected between 320–650 m.

Remarks.—Apart from *Plesionika mac-*

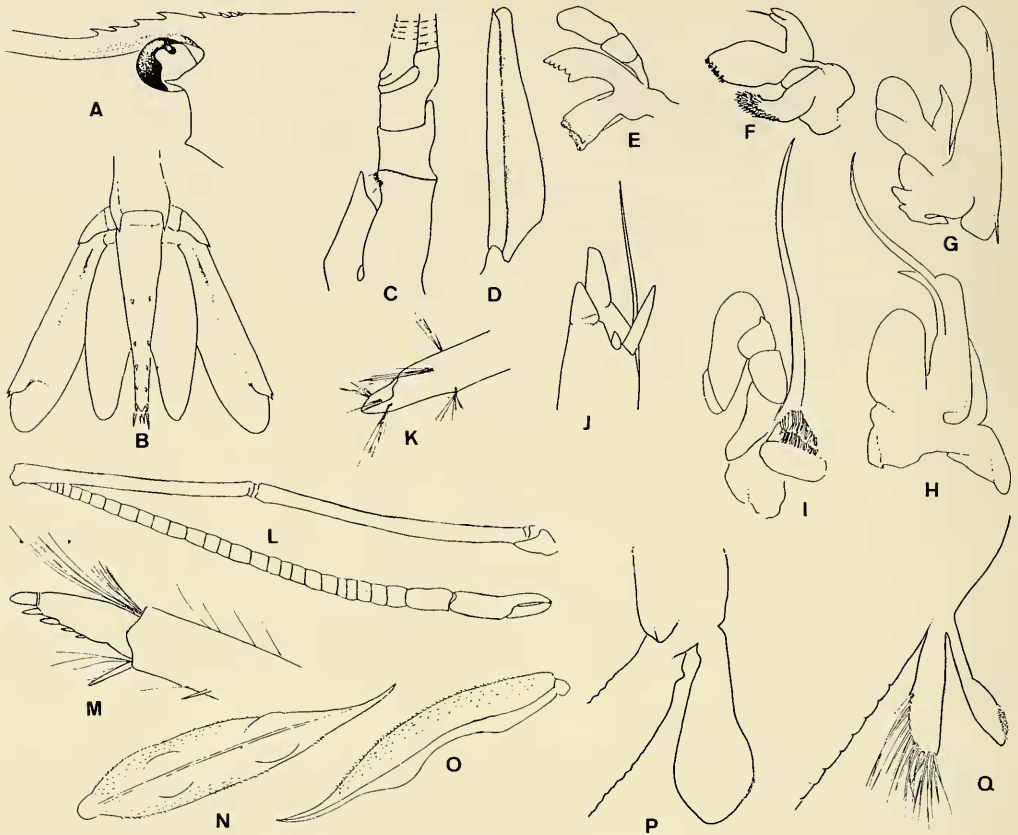


Fig. 5. *Plesionika macropoda*, A–O, female holotype; P, Q, male paratype from West Puerto Rico: A, Left eye and orbit; B, Telson and uropods, dorsal aspect; C, Left antennule, mesiodorsal aspect; D, Left antennal scale, dorsal aspect; E, Left mandible; F, Left 1st maxilla; G, Left 2nd maxilla; H, Left 1st maxilliped; I, Left 2nd maxilliped; J, Distal end of left 3rd maxilliped; K, Chela of left 1st pereopod; L, Left 2nd pereopod; M, Dactyl and distal end of propodus of left 4th pereopod; N, Tegumental scale from posterodorsal area of carapace; O, Same, lateral aspect; P, Endopod of left 1st pleopod; Q, Left appendices masculinae and internae, mesial aspect (Magnifications: A, B, D, $\times 3.2$; C, E–I, L, $\times 6.4$; P, $\times 13.2$; K, M, Q, $\times 25$; J, $\times 165$; N, O, $\times 323$).

ropoda Chace, 1939, other western Atlantic members of the genus having a rostrum that is dorsally smooth (excluding the basal crest) include *P. polyacanthomerus* Pequegnat, 1970 and *P. martia* (A. Milne-Edwards, 1883). *Plesionika polyacanthomerus* is easily differentiated by the presence of a broad curved ridge on the lateral surface of the carapace (Pequegnat 1970). *Plesionika martia* on the other hand, has a rostrum with fewer dorsal teeth at the basal crest (5–9 vs. 8–10 for *P. macropoda*) and considerably

more ventral teeth (34–56 vs. 9–14 respectively) (Pequegnat 1970; Crosnier & Forest 1973, fig. 63d). In addition, dactyls of the walking legs of *Plesionika martia* are armed with a single terminal tooth (A. Milne-Edwards 1883, pl. 21), dactyls of *P. macropoda* have 5 teeth.

To my knowledge, *Plesionika edwardsii* (Brandt, 1851) and *P. macropoda* are the only two species within the genus to have multiple teeth along the posterior margin of the dactyls, *P. edwardsii* having 4 (Chace

1985, fig. 26e) and *P. macropoda* with 5 (includes terminal tooth in both cases). Features distinguishing *P. macropoda* from *P. edwardsii* respectively, include longer walking legs, a rostrum with fewer dorsal teeth (8–10 vs. 28–34), color of the eggs (red-brown vs. blue), and well-formed versus vestigial epipods.

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